

RECEIVED
CENTRAL FAX CENTER

JAN 24 2006

PTO/SB/17 (12-04v2)

Approved for use through 07/31/2008. OMB 0851-0032

U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Effective on 12/09/2004.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27
TOTAL AMOUNT OF PAYMENT (\$)**180.00**

Complete if Known

Application Number	10/604,687
Filing Date	08/11/2003
First Named Inventor	Kun-chih Lin
Examiner Name	GUERRERO, MARIA F
Art Unit	2822
Attorney Docket No.	ADTP0067USA

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: **50-3105** Deposit Account Name: **North America Intellectual Property Corporation**

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee
☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Small Entity	Fee (\$)	Small Entity	Fee (\$)	Small Entity	Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
---------------------	---------------------	-----------------	----------------------

- 20 or HP =	x	=	
--------------	---	---	--

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
----------------------	---------------------	-----------------	----------------------

- 3 or HP =	x	=	
-------------	---	---	--

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
---------------------	---------------------	---------------------------------------------------------	-----------------	----------------------

- 100 =	/ 50	(round up to a whole number)	x	=	
---------	------	------------------------------	---	---	--

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): **submission of Information Disclosure Statement**

Fees Paid (\$)

180.00

SUBMITTED BY

Signature	<i>Winston Hsu</i>	Registration No. (Attorney/Agent)	41,526	Telephone	3027291562
Name (Print/Type)	Winston Hsu	Date	1/24/2006		

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



RECEIVED
CENTRAL FAX CENTER

JAN 24 2006

**North America
Intellectual Property Corporation**

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

Voice Mail: 302-729-1562

FAX: 806-498-6673

e-mail: winstonhsu@naipo.com

Customer No.: 27765

Fax To: GUERRERO, MARIA F

Tel.: (571) 272-1837

Art Unit: 2822

Fax: (571) 273-8300

From : Winston Hsu, Registration No. 41,526

Serial No.: 10/604,687

Attorney Docket No.: ADTP0067USA

Subject: Information Disclosure Statement (IDS)

Total Pages: 26 pages (including cover page)

Winston Hsu 2006/01/24

ADTP0067USA0_D1_2

RECEIVED
CENTRAL FAX CENTER

JAN 24 2006

PTO/SB/21 (09-04)

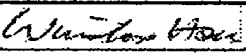
Approved for use through 07/31/2008, OMB 0651-0031

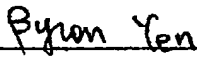
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/604,687	
	Filing Date	08/11/2003	
	First Named Inventor	Kun-chih Lin	
	Art Unit	2822	
	Examiner Name	GUERRERO, MARIA F	
Total Number of Pages in This Submission	25	Attorney Docket Number	ADTP0067USA

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	North America Intellectual Property Corporation		
Signature			
Printed name	Winston Hsu		
Date	1/24/2006	Reg. No.	41,526

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name	Byron Yen	Date	1/24/2006

This collection of information is required by 37 CFR 1.6. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

RECEIVED
CENTRAL FAX CENTER

JAN 24 2006

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Kun-chih Lin

5 Appl. No.: 10/604,687

Filing Date: 08/11/2003

Examiner: GUERRERO, MARIA F

Art Unit: 2822

Docket No.: ADTP0067USA

10

Title: METHOD OF FABRICATING POLYSILICON FILM BY EXCIMER
LASER CRYSTALLIZATION PROCESS

To: Commissioner for Patents

15

P.O. BOX 1450

Alexandria, VA 22313-1450

Subject: Information disclosure statement under 37 CFR §1.56

20 Dear Sir or Madam,

This is an Information Disclosure Statement in accordance
with the duty to disclose information material to
patentability under 37 CFR §1.56. The applicant wishes to make
25 of record the documents listed on the accompanying PTO/SB/08
form.

Since this IDS is filed after the mailing date of final
Office action but before payment of the issue fee,
30 consideration of the information disclosure statement is
hereby requested according to 37 CFR §1.97(d).

01/26/2006 EFLORES 00000092 10604687

01 FC:1806 180.00 DA

1/26/2006 EFLORES 00000092 503105 10604687

Each item of information contained in the information disclosure statement was first cited in an Office communication mailed on December 09, 2005, which is no more than three months prior to the filing of this information disclosure statement, for the counterpart China patent application number 03141245.9. Accordingly, the submission fee of an information disclosure statement set forth in \$1.17(p) is enclosed to fulfill the requirement of \$1.97.

According to the requirement set forth in 37 CFR \$1.98, the applicant is submitting a copy of the cited Japan patent 2000-150893 (published May 30, 2000) and Japan patent H06-338614 (published December 6, 1994). The English-language titles and abstracts of Japan patent 2000-150893 and Japan patent H06-338614 are hereby presented to fulfill the 37 CFR \$1.98(a)(3) requirement.

The title and abstract of Japan patent 2000-150893 are listed as follows:

20 Title:

THIN-FILM TRANSISTOR AND ITS MANUFACTURING METHOD

Abstract:

25 PROBLEM TO BE SOLVED: To provide a polysilicon TFT that has the superior transmittance at an opening, at the same time, can secure the flatness of wiring formation part even when cap annealing is made, and prevents the burnout of aluminum wiring, and its manufacturing method.

30 SOLUTION: In a polysilicon TFT, a silicon oxide film layer 11, a silicon nitride film layer 12, an amorphous silicon layer 13, and a cap layer 14 are laminated in this order, and excimer laser annealing (ELA) treatment is made via

the cap layer, thus forming polysilicon 15. Also, in the polysilicon TFT, the silicon nitride film layer is eliminated by wet etching after excimer laser annealing.

5 The title and abstract of Japan patent H06-338614 are listed as follows:

Title:

THIN-FILM TRANSISTOR AND MANUFACTURE THEREOF

10 Abstract:

PURPOSE: To avoid the formation of stepped part on a gate insulating film by a method wherein the gate insulating film is to be provided on the surface of a polysilicon film formed on a device area and a silicon oxide film
15 formed on non-device area.

CONSTITUTION: An amorphous silicon film 13 is deposited on the surface of an underneath layer 12 to be implanted with oxygen ions using a resist film 15 as a mask so as to assume the amorphous silicon film 13 on the parts
20 excluding the device area 14 as oxygen ion implanted film 13a. Next, the whole surface after releasing the resist film 15 is laser-annealed to crystallize the amorphous silicon film 13 on the part corresponding to the device area 14 to be turned into a polysilicon film. Besides,
25 the oxygen ion implanted film 13a is oxidized to be turned into silicon oxide film whereon a gate insulating film is to be provided. Through these procedures, the formation of stepped part on the gate insulating film can be avoided thereby enabling the inconvenience due
30 to the stepped part to be eliminated.

Claim 1 and claim 12 of the present invention have been

amended in the response to Office action submitted with this IDS. The amended claims 1 and 12 are repeated here for reference.

5 Claim 1 (currently amended): A method of fabricating a polysilicon film by an excimer laser crystallization process, the method comprising following steps:

 providing a substrate defined with a first region and a second region;

10 forming an amorphous silicon film on the substrate;

 forming a mask layer on the amorphous silicon film;

 performing a first photo-etching process to remove the mask layer in the first region;

 forming a heat-retaining capping layer covering the mask layer in the second region and the amorphous silicon film in the first region; and

15 performing the excimer laser crystallization process to make the amorphous silicon film, covered by the heat-retaining capping layer, in the first region crystallize to a polysilicon film, using an excimer laser to irradiate the amorphous film to make the amorphous silicon film in the second region, which is covered with the mask layer, become partially melted and make the amorphous film in the first region, which is not covered with the mask layer, become completely melted, and grains are grown laterally toward the first region from the interface between the first region and the second region.

30 Claim 12 (currently amended): A method of fabricating a polysilicon film by an excimer laser crystallization process, the method comprising following steps:

providing a substrate defined with a first region and a second region;
forming an amorphous silicon film on the substrate;
forming a heat-retaining capping layer covering the
5 amorphous silicon film in both of the first region
 and the second region;
forming a mask layer on the heat-retaining capping layer;
performing a first photo-etching process to remove the
 mask layer in the first region and expose the
10 heat-retaining capping layer in the first region; and
performing the excimer laser crystallization process to
 make the amorphous silicon film, covered by the
 heat-retaining capping layer, in the first region
 crystallize to a polysilicon film, using an excimer
15 laser to irradiate the amorphous film to make the
 amorphous silicon film in the second region, which
 is covered with the mask layer, become partially
 melted and make the amorphous film in the first region,
 which is not covered with the mask layer, become
20 completely melted, and grains are grown laterally
 toward the first region from the interface between
 the first region and the second region.

According to Japan patent 2000-150893, an excimer laser
25 annealing processing is performed via the cap layer 14 to form
 the polysilicon 15. However, Japan patent 2000-150893 does
 not teach forming a heat-retaining capping layer covering a
 mask layer in the second region and the amorphous silicon film
 in the first region. Japan patent 2000-150893 does not mention
30 utilizing a heat-retaining capping layer covering the
 amorphous silicon film for reducing heat dissipation rate to
 provide a high temperature environment in a longer time to

re-crystallize the silicon film and to effectively improve the crystal grain sizes.

Furthermore, in the present invention, the amorphous
5 silicon film in the first region is covered with a mask layer.
When the amorphous film is irradiated by an excimer laser,
the amorphous silicon film in the second region becomes
partially melted and the amorphous film in the first region
becomes completely melted, and grains are grown laterally
10 toward the first region from the interface between the first
region and the second region. Since Japan patent 2000-150893
does not disclose these limitations of the present invention,
the applicant believes that the structure and the fabrication
method of Japan patent 2000-150893 are significantly
15 different from the present invention.

According to Japan patent H06-338614, the amorphous
silicon film 13, which is not covered with the mask layer,
should be implanted with oxygen ions to be the oxygen ion
20 implanted film 13a before the excimer laser annealing
treatment. Then, the oxygen ion implanted film 13a is oxidized
to be turned into silicon oxide film whereon a gate insulating
film is to be provided. As the excimer laser crystallization
process is performed, the amorphous silicon film 13 and the
25 oxygen ion implanted film 13a are not covered by any mask layer
or any heat-retaining capping layer. Japan patent H06-338614
does not mention utilizing a heat-retaining capping layer
covering the amorphous silicon film for reducing heat
dissipation rate to provide a high temperature environment
30 in a longer time to re-crystallize the silicon film and to
effectively improve the crystal grain sizes. The structure and
the fabrication method of Japan patent H06-338614 are

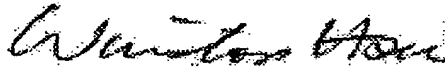
significantly different from the present invention.

Accordingly, although Japan patent 2000-150893 and Japan
patent H06-338614 disclose methods of fabricating a
5 polysilicon film by an excimer laser crystallization process,
the applicant believes they are substantially different from
the amended claim 1 and the amended claim 12 of the present
invention, and a combination of the cited references still
does not anticipate all limitations of these claims. Thus,
10 the present invention is novel and unobvious.

It is respectfully requested that the Examiner consider
the documents listed on the accompanying PTO/SB/08 form and
that it be made of record in the application. The applicant
15 hopes that the Examiner can initial the cited references on
the form and that a copy of the initialed form be sent to the
applicant with the next communication from the Examiner.

Respectfully submitted,

20



Date: January 23, 2006

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

25 Voice Mail: 302-729-1562

Facsimile: 806-498-6673

e-mail : winstonhsu@naipo.com

Note: Please leave a message in my voice mail if you need to
30 talk to me. (The time in D.C. is 13 hours behind the Taiwan
time, i.e. 9 AM in D.C. = 10 PM in Taiwan).